



ACTION

To: Board of Directors
From: Stephen Hollabaugh
Date: February 20, 2013
Subject: Consideration of the Future Role of Energy Storage AB 2514 within the District

1. WHY THIS MATTER IS BEFORE THE BOARD

AB 2514 requires a Publicly Owned Utility (POU) governing Board to determine if it is viable and cost-effective to procure energy storage systems for their utility.

2. HISTORY

On September 29, 2010, the Governor signed Assembly Bill (AB) 2514 (Skinner, statutes of 2010). This legislation is aimed at encouraging electric utilities to access the appropriate levels of energy storage that may be cost-effectively implemented. Accordingly, pursuant to Public Utilities Code Section 2835(b), each publicly owned electric utility is directed to initiate a process to determine appropriate targets, if any, for the utility to procure viable and cost-effective energy storage systems. If it is determined that there is an appropriate level of viable and cost-effective energy storage systems that can be achieved by December 31, 2016, and a second target by December 31, 2021, the publicly owned utility shall adopt the procurement targets by October 1, 2014.

Energy storage systems are defined in the legislation to mean "commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy." Furthermore, in order to be viable, the energy storage system must "be cost effective and either reduce emissions of greenhouse gases, reduce demand for peak electrical generation, defer or substitute for an investment in generation, transmission, or distribution assets, or improve the reliable operation of the electrical transmission or distribution grid.

3. NEW INFORMATION

Energy storage systems, in order to be viable, must be cost effective and either reduce emissions of greenhouse gases, reduce demand for peak electrical generation, defer or substitute for an investment in generation, transmission, or distribution assets, or improve the reliable operation of the electrical transmission or distribution grid.

Staff has reviewed "Electricity Energy Storage Technology Option - A White Paper

primer on applications, Costs and Benefits" written by the Electrical Power Research Institute (EPRI). This white paper includes an Executive Summary, Introduction, Energy Storage Application Requirements and Benefits, Market Size and Potential, Technology Options: Energy Storage Solutions and System Costs, Discussion and Conclusions, Recommendations for Future Work and Appendix A: Framework and Methodology for Valuation of Energy Storage Applications.

In producing this report, EPRI's Energy Storage Program drew on information from technology assessments, market analysis, application assessments, and input from storage system vendors and system integrators. The paper provides an overview of energy storage applications and technology options, including updated cost and performance estimates for current and near-term options. Longer-term emerging systems are also highlighted. A final goal of the paper is to outline a framework and methodology that electric utilities and industry stakeholders may use in estimating the value of energy storage systems in the following applications:

- Photovoltaic integration
- Wind power integration
- System applications
- Utility transmission and distribution (T&D) asset management
- Commercial and industrial (C&I) applications
- Distributed energy storage near end-user loads
- Residential applications

For each application area, the report presents an overview of the application and relevant energy storage solution options, including:

- A brief description of the technologies
- A summary of technology development status
- Current technology performance and costs, including uncertainties
- Comparative benefit and gap analysis by application
- Major technical issues and future development direction and trends
- Development and commercialization timelines
- Relevant market adoption and business issues
- A framework for economic analysis

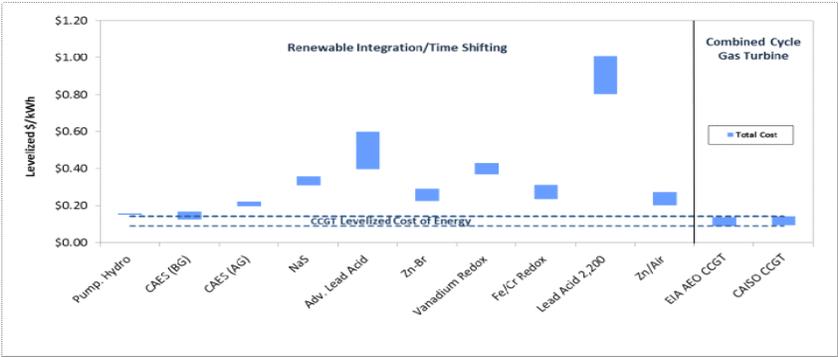


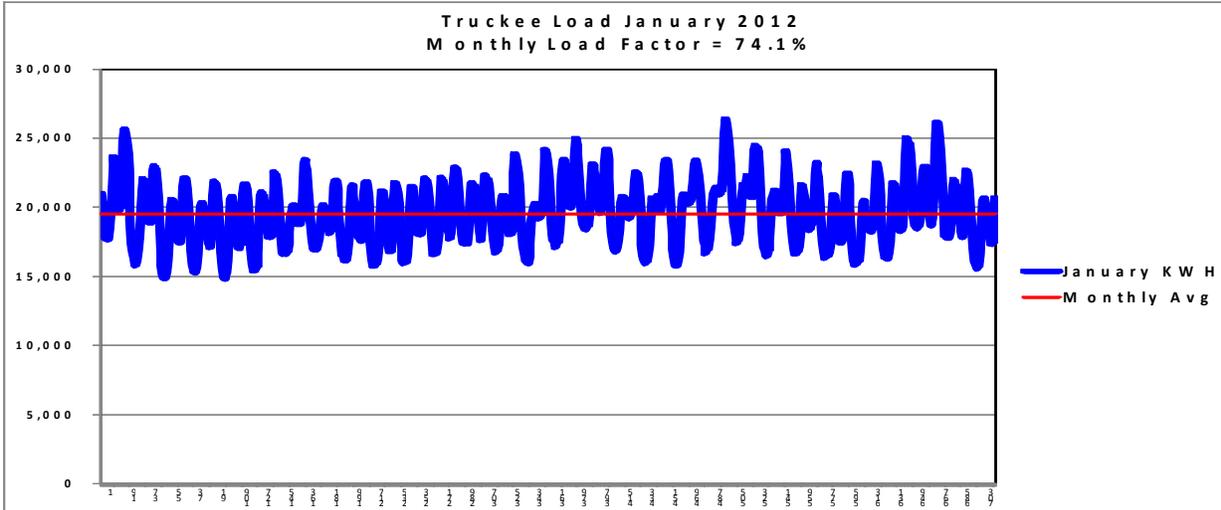
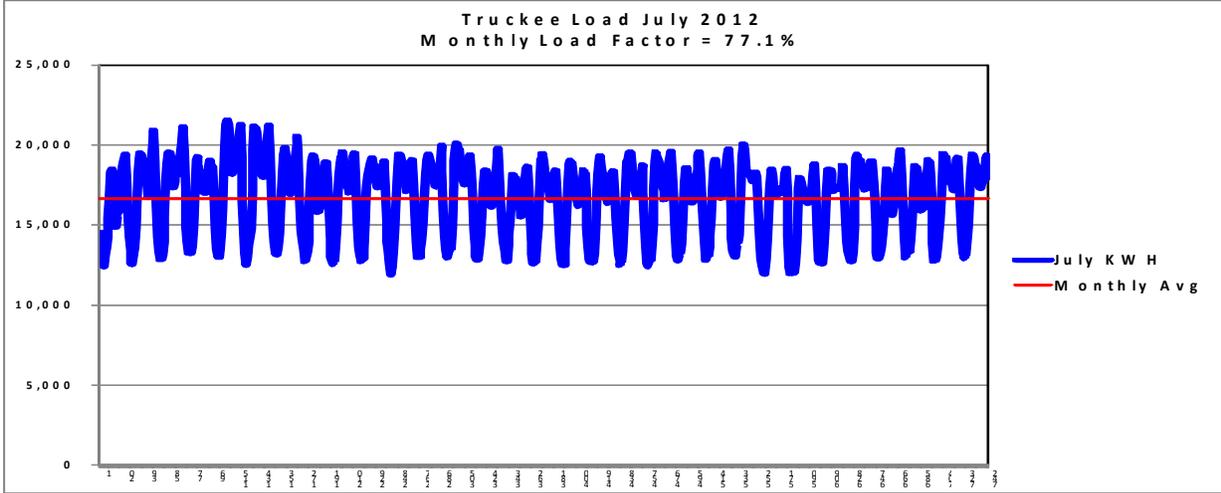
Figure 15
Levelized Cost of Delivered Energy for Energy Storage Technologies Compared to CCGT.

Figure 15, from the white paper, shows that the cost of energy from energy storage is much higher than a combined cycle gas turbine. The white paper finds that many of the energy storage options discussed have not been validated in the applications discussed, and are not "grid-ready". The future may have "grid-ready" storage solutions by 2015.

District Analysis:

The District looked at our geographic location, load shape, type of customers and existing generation portfolio to do our review of energy storage systems.

Load Shape: Below are a summer and winter month of data showing the loadshape and load factor



With such a high load factor and the current low cost of investment in generation, the economics of energy storage for the District are not cost effective.

The District found that given this data along with a high monthly load factor (our peak

load is not significantly higher than our average load), winter peaking load, and the District's load peaks on weekends and holidays, the current cost of investment in carbon-free generation, energy storage systems are not a cost-effective viable source for the District at this time.

4. FISCAL IMPACT

There is no fiscal impact of finding energy storage systems not viable and cost effective at the current time.

5. RECOMMENDATION

- a) The Board finds that energy storage systems are not currently viable and cost effective for this District, and the District is currently not adopting procurement targets.
- b) The Board directs staff to reevaluate this not less than every three years as required by AB 2514.



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